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DURHAM PRIORY TITHES AND THE BLACK DEATH BETWEEN TYNE AND TEES

BEN DODDS*

College of St Hild and St Bede, University of Durham

I

ALTHOUGH AN EXCEPTIONALLY LARGE NUMBER of Durham Priory obedientiary accounts survive from the fourteenth and fifteenth centuries, indicating the complexity and sophistication of monastic bureaucracy and finance, we have few contemporary documents which digest the material from the accounts and attempt to use it for anything more than auditing. Just such a document was made by the monks in 1436–37 expressing their alarm at the decline in their spiritual income.¹ Using their archive of bursars' account rolls, the monks prepared a table giving the income from each parish in 1293, 1348 ('the first year before the Great Plague'), 1350 ('the first year after the Great Plague'), 1392 and 1420. At this point in the document, the monks observed that 'receipts from churches pertaining to the office of Bursar from the year of our Lord 1293 exceed the receipts of the year of our Lord 1420 by £1070 4s. 4d.'. The monks presumably chose spiritual income as an economic indicator because it was the single most important constituent of their overall revenues, estimated in the same document to have constituted around one-third of the Bursar's income. This is an accurate reflection of the overall importance of spiritualities in the income of the monastery as a whole.²

The tithes of appropriated rectories represented the most important source of Durham Priory's spiritual income. The concept of the payment of a tenth of all produce to God is embodied in the commands made to Moses on Mount Sinai, and medieval Canon Law dictated that income from tithes be divided between the bishop, the clergy, the poor, and the fabric of church buildings.³ By the thirteenth century, however, parochial tithes were becoming a significant part of the income of religious corporations through the mechanism of appropriation and the process was strictly

* My thanks are due to Professor R. H. Britnell for supervising my research and his detailed comments on the draft of this article, and to Dr David Stone for his help with the method.

¹ D(urham) C(athedral) M(uniments), Register II, fols 356^v–^r. The document is transcribed, slightly inaccurately, in *Historiae Dunelmensis Scriptores Tres*, ed. J. Raine, Surtees Society, IX (1839), ccxlviii–cclii; R. B. Dobson, *Durham Priory 1400–1450* (Cambridge, 1973), p. 269.

² Dobson, *Durham Priory*, p. 268.

³ Lev. 27: 30–32; F. L. Cross and E. A. Livingstone, *The Oxford Dictionary of the Christian Church*, 3rd edn (Oxford, 1997), p. 1626; F. A. Gasquet, *Parish Life in Medieval England*, 3rd edn (1909), p. 18.

regulated at the Fourth Lateran Council in 1215. Tithes were either predial, that is from the earth, or personal, meaning profits from workmanship. Predial agricultural tithes, including both crops and livestock, were subdivided into greater and lesser tithes. The former were the tithes of the major grains, known as garb tithes, and wool tithes, whilst the latter came from gardens and smaller scale enterprises. If a rectory was appropriated, the great tithes tended to go to the religious corporation and the lesser tithes to the vicar who looked after the cure of souls in the parish.⁴

Durham Priory obedientiaries and heads of dependent cells received tithes from twelve parishes between the Tyne and Tees (*infra aquas*) in the second half of the fourteenth century.⁵ These are shown in Figure 1. They were also entitled to tithes from parishes in Scotland, Northumberland, and Yorkshire, and in the case of parishes associated with the cells, various other English counties. The nature of the northern parochial structure meant *infra aquas* tithes, and sometimes those from other northern counties, were received from several separate villis within each parish. The receipts from tithes of these villis were entered in the annual accounts presented to the Chapter by each obedientiary and head of cell.⁶ There were different ways in which the officeholders could dispose of the tithes with which their obediences were endowed. Some they received directly, as quantities of grain; this was very common for the tithes of certain parishes, including those of Billingham which pertained to the Bursar and Terrar. For example, in 1375 the tithes of Billingham, Wolviston, Cowpen Bewley and Newton Bewley, all in the parish of Billingham, were *in manu domini*.⁷ If tithes were collected in this way then the Priory had to take care of the expenses of collection; in 1375 four '*homines de Abbathia*' were paid 13s.4d. for collecting the Billingham tithe, and a further payment of 8s. was made for the collection of the tithes of Cowpen Bewley and Newton Bewley.⁸

It was much more common for tithes to be sold, usually annually. Contracts were prepared when the sale of a tithe was negotiated and a number of these survive. It was common for the monks' officials to negotiate the sale of the tithes immediately prior to the harvest. For example, on 1 August 1342 Reginald of Haswell drew up an obligation with the monks by which he agreed to pay £15 13s.4d. for the tithes of Eden (Monk Hesleden parish) and South Sherburn (Pittington parish). He promised to make these payments on the feast of St Cuthbert (20 March) and the feast of the Birth of St John the Baptist (24 June) in 1343.⁹ In most cases, it seems the sale of

⁴ R. A. R. Hartridge, *A History of Vicarages in the Middle Ages* (Cambridge, 1930), pp. 1–21; Gasquet, *Parish Life*, pp. 12–16.

⁵ Aycliffe, Billingham, Bishop Middleham, Dalton-le-Dale, Durham St Oswald, Gilesgate St Mary Magdalene, Heighington, Jarrow, Kirk Merrington, Monk Hesleden, Monkwearmouth, Pittington. This list was constructed with the help of R. N. Hadcock, 'A Map of Mediaeval Northumberland and Durham', *Archaeologia Aeliana*, 4th series, xvi (1939), 159–207.

⁶ Durham Priory obedientiary accounts will be individually referenced when quoted directly in the text but not when figures drawn from the accounts have been used in calculations. Accounts are easily traceable by obedience and year. See A. J. Piper, *Muniments of the Dean and Chapter of Durham: Medieval Accounting Material* (Durham University Library Archives and Special Collections Searchroom Handlist, 1995). The contents of this handlist can be found on Durham University Library Archives and Special Collections web pages at <http://flambard.dur.ac.uk:6336/dynaweb/handlist/ddc>

⁷ DCM, Bursar's Account 1375–6, Receipts.

⁸ *Ibid.*, 1375–6, Expenses.

⁹ DCM, Miscellaneous Charters, 3957.

Parishes and Vills appropriated to Durham Priory and its Dependencies between the Tyne and Tees

AYCLIFFE

Bursar & Terrar

- 1 Aycliffe
- 2 Heworth (a)
- 3 ?Newhouse (a + b)
- 4 Newton Ketton
- 5 Nunstainton
- 6 Preston-le-Skerne
- 7 Woodham

BILLINGHAM

Bursar & Terrar

- 8 Billingham
- 9 Wolviston
- 10 Cowpen Bewley
- 11 Newton Bewley

BISHOP MIDDLEHAM

Prior of Finchale

DALTON-LE-DALE

Chamberlain

DURHAM ST OSWALD

Hostiller

- 12 Burn Hall (a)
- 13 Elvet
- 14 Harbottle (a)
- 15 Newton (a)
- 16 Old Durham (a)
- 17 Shinccliffe
- 18 ?Wastes (a + b)

GILESGATE

ST MARY MAGDALENE

Almoner

HEIGHINGTON

Bursar & Terrar

- 19 Heighington
- 20 Killarby
- 21 Redworth
- 22 School Aycliffe
- 23 Walworth

JARROW

Bursar & Terrar/Master of Jarrow

- 24 Fallingsby (a)
- 25 Harton
- 26 Hebburn (a)
- 27 Monkton
- 28 Nether Heworth (a)
- 29 Over Heworth (a)
- 30 Preston and Simonside (a)
- 31 Wallsend
- 32 Willington

KIRK MERRINGTON

Bursar & Terrar

- 33 Ferryhill
- 34 Great Chilton
- 35 Little Chilton
- 36 Spennymoor (a)

MONK HESLEDEN

Bursar & Terrar

- 37 Eden
- 38 Hardwick (a)
- 39 Hulam
- 40 Sheraton

MONKWEARMOUTH

Bursar & Terrar/Master of Wearmouth

- 45 Hylton
- 46 Southwick

PITTINGTON

Bursar & Terrar

- 47 Hefton le Hill (a)
- 48 Ludworth
- 49 North Sherburn
- 50 Ravensflat (a)
- 51 South Sherburn
- 52 Shadforth

a Boundaries not recorded in 19th Century sources
b No known fixed location

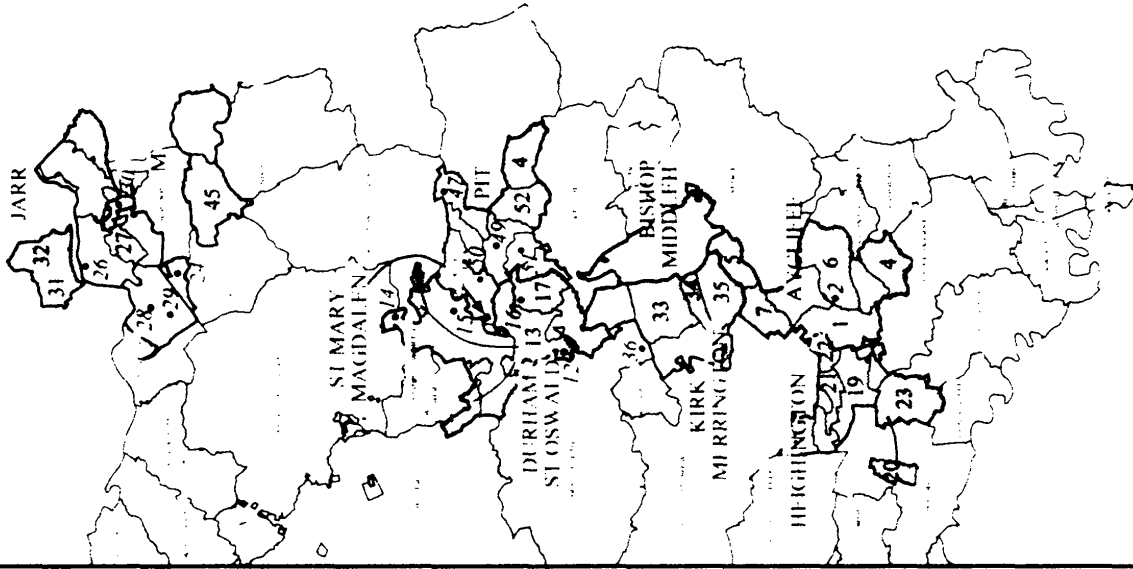


FIGURE 1. Parishes and Vills appropriated to Durham Priory and its Dependencies Between the Tyne and Tees (the author is grateful to Dr Helen Dunsford of the Durham University Department of Geography for preparing the map)

tithes conferred the expenses of collection onto the buyer and in some cases, the payment for the tithe incorporated the lease of a tithe barn for the purpose of collection and storage.¹⁰ Tithes were sometimes sold for a number of years; that is, an agreement was drawn up by which the buyer agreed to pay a certain amount on an appointed day in each year covered by the lease. Given the incompleteness of the collection of sale and leasing documents, it is often difficult to tell the nature of the contract from the obedientiary accounts alone which give nothing more than the sum received, the name of the vill from which the tithes were taken and sometimes the name of the buyer. A sequence of consecutive accounts in which the same amounts were paid for a tithe by the same person suggests a leasing arrangement rather than a series of annual sales. For example, the tithes of South Sherburn (Pittington) were sold to Hugh of Corbridge for £6 13s. 4d. in 1388, 1389, and 1390; this looks like a three-year lease.¹¹ Tithes were also sometimes sold for quantities of grain rather than for cash. For example, the 1375 tithes of Heighington and Redworth (Heighington) were sold for wheat and barley.¹²

The tithe material in the Durham Priory obedientiary accounts gives the historian of the economy of the North-East in the late fourteenth century an exceptionally rich source of evidence. Over three thousand account entries for tithes received from villis have been collected from nearly three hundred obedientiary accounts, cell accounts, and inventories from between 1340 and 1400. Given the extremely large amount of data used in this study, it is not possible to tabulate it all. Table 1 gives bi-decennial tithe receipts from a selection of eighteen villis to show the type of material used. Unlike the Durham monks, modern historians have devoted less attention to tithe than to other indicators. The attention tithe has received has tended to be from historians interested in the process of appropriation, its relationship to economic downturn, and its economic impact.¹³ Thanks to the abundance of English manorial records, court records and other administrative material from great estates, a large number of studies of rural England has been produced over the last century. The very richness of these records, and their copious detail, has meant work has concentrated on the seigneurial sector. Although tithe evidence cannot hope to rival the detail of the thousands of extant manorial accounts, it has the advantage of being directly related to overall output. Tithe represented one tenth of the produce of seigneurial demesnes and peasant strips alike.

It is possible to extract long series of tithe receipts from the Durham accounting material but these must be examined much more closely if a meaningful output series is to be constructed. There are no English precedents for this process but manipulation of medieval tithe figures is much more advanced in France where historians do not have an abundance of manorial records. The first systematic study of a series of tithe figures as indicators of agricultural production was published in 1961 by Baehrel, using data from two estates near Arles to examine production in the seventeenth and

¹⁰ Shincliffe garb tithes were sold for £21 10s. '*cum dimissione orrei*' in DCM, Hostiller's Account 1387 8, Receipts.

¹¹ DCM, Bursar's Accounts 1388 9, 1389 90 and 1390 1, Receipts.

¹² Ibid., 1375 6, Receipts.

¹³ Hartridge, *Vicarages*; G. Constable, *Monastic Tithes from their Origins to the Twelfth Century* (Cambridge, 1964).

TABLE I
Sample Tithe Receipts from Eighteen Selected Villis (£)⁵⁷

Vill	1348	1350	1355	1360	1365	1370	1375	1380	1385	1390	1395	1400
Aycliffe	10.3	1.7	9.33	12.0	14.7	13.3	H	11.3	J	10.7**	9.7**	J
Heworth	JH	1.3	5.33	6.0	6.0	6.0	3.3	2.0	J	J	2.2	J
Cowpen Bewley	JH	H	H	H	JH		H	10.0	6.7	6.7	J	H
Wolviston	JH	H	H	C	JH		H	C		14	J	H
Heighington	10.0	2.3	10.0	12.0	15.3	16.0	J	10.0	9.0	6.0	J	J
School Aycliffe	3.3	1.3	3.5	3.7	4.0	5.3	2.7	2.7	1.5	1.0	J	J
Monkton	6.7	2.7	C	5.7	5.3	4.7	J	3.7	2.7	2.7	3.5	3.5
Wallsend, Willington	26.7	14	22.0	21.0	21.0	20.3	13.3	10.0	8.7	10.0	12.0	12.7
Two Chiltons	20.5	8.7	C	C	C	19.0	11.7	C	J	8.0	10.0	10.0
Spennymoor	JH	2.7	0.2	3.3*	0.9	2.5	W		C	W		
Eden	6.0	3.0	C	J	8.0	10.0	7.7	3.3	4.0	4.0	3.3	4.0
Hardwick	4.7	4.0	3.0	2.3	2.7	2.7	2.7	2.0	2.7	2.0	2.7	2.0
Hylton	H	C	13.3	12.0	11.3	13.3	11.3	10.5	10.7	5.5	8.0	4.0
Southwick	C	H	C	H	16.0	H	H	H	12.0	10.7	8.0	8.7
North Sherburn	13.3	11.7	18.0	13.3	17.3	H	JH	9.3	10.0	8.7	***	J
Ravensflat	2.0	0.8	1.0	1.3	J	1.3	1.5	1.5	0	J		W
Shincliffe	22.3	14.6	20.0	21.0	23.5	D	27.0	D	19.0	21.0	20.0	19.0
Wastes	12.0	4.0	6.2	9.3	12.0	D	J	D	1.3	3.8	1.3	1.5

Key H = tithe in hand; C = tithe sold for corn; J = tithe sold jointly with that of another vill; D = damaged document; W = described as waste; [BLANK] = no mention of receipt in document or document does not survive

* Combined receipts from Hett in Spennymoor, Morehouses in Spennymoor and Spennymoor in Tudhow.

** Aycliffe sold jointly with Aycliffe demesne in this year.

*** Parts of Pitlington parish were assigned to the upkeep of the retired Prior Robert Walworth in this year.⁵⁸

⁵⁷ The information in this table was taken from the tithe receipts sections of the following account rolls in the DCM: Bursar's Account 1348/9; Hostiller's Account 1348/9; Bursar's Account 1350/1; Hostiller's Account 1350/1; Bursar's Account 1355/6; Hostiller's Account 1355/6; Bursar's Account 1360/1; Hostiller's Account 1360/1; Bursar's Account 1365/6; Hostiller's Account 1365/6; Bursar's Account 1370/1; Hostiller's Account 1370/1; Bursar's Account 1375/6; Hostiller's Account 1375/6; Bursar's Account 1380/1; Hostiller's Account 1380/1; Bursar's Account 1385/6; Bursar's Account 1385/6; Bursar's Account 1390/1; Hostiller's Account 1390/1; Bursar's Account 1395/6; Hostiller's Account 1395/6; Bursar's Account 1400/1; Hostiller's Account 1400/1.

⁵⁸ Dobson, *Durham Priory*, pp. 110-12. The provisions made from Pitlington parish for Walworth's retirement are laid out in the tithe receipts section of DCM, Bursar's Account, 1394/5.

eighteenth centuries. This work was followed up by Ladurie and Goy and an attempt was made to bring together tithe studies from around Europe at a colloquium held in Paris in 1977 which was preparatory to the Seventh Congress of Economic History held in Edinburgh the following year.¹⁴ Goy made these comments on the historiographical developments:

Comparative studies on a wide, international scale are now possible thanks to the use of a source which has always been known but was previously used only for the history of the Church or administration. By its very nature the tithe is one of the best means of measuring trends in agricultural production.¹⁵

The methodology needed to convert the Durham tithe receipts into an output series depends on how the tithe was received and the detail with which receipts were recorded. For example, we have forty tithe receipts from Wolviston (Billingham) from between 1340 and 1400 (of which a selection is shown in Table 1). Sixteen of these receipts tell us the Wolviston tithes were in hand but we only have details of exact quantities of grain received from 1396, 1397, 1399, and 1400. This is because between the 1340s and the end of the 1370s it was common for the bursars to record receipt of tithes in kind as '*Et nihil de decima de [vill name] quia in manu Prioris*'. Although very few fourteenth-century granators' accounts survive, a rare example of 1341/2 suggests exact quantities of tithe grains were recorded by the granators at this stage in the history of the monastery's administration.¹⁶ At the end of the 1370s, however, accounting practice changed and valuations of grain receipts from tithes in hand began to be given in the receipts sections of the bursars' accounts along with the quantities received, enabling receipts of produce to be entered in cash accounts. However, it is not possible to construct a precise output series for Wolviston even for the four years for which grain quantities are known because Wolviston was sometimes treated separately and sometimes jointly with other Billingham parish villis.

Years in which exact quantities of grain received as tithe were recorded are rare, at least in the fourteenth century. Another method has to be adopted to construct an output series based on the Durham Priory tithe material. Ladurie pioneered these methods in the 1960s with his work on Languedoc, pointing out that the price negotiated for the sale of a tithe was based on a simple calculation on the part of the tithe buyer. The purchaser would want to estimate the yield of the tithe and the price he could expect to realize for the grain, deducting expenditure on collection and sale. This led Ladurie to suggest that series of tithe sale figures are the closest we can get to 'theoretical agricultural income expressed in current prices'. In other words, if grain price is taken into account then tithe sale prices give an indication of output. Putting this into practice for a series of tithe receipts from the early seventeenth century, Ladurie discovered that although tithe revenue increased during this period there was

¹⁴ E. Le Roy Ladurie and J. Goy, *Tithe and Agrarian History from the Fourteenth to the Nineteenth Centuries: an Essay in Comparative History* (Cambridge, 1982), pp. 4–13; *Proceedings of the Seventh International Economic History Congress*, ed. M. Flinn (Edinburgh, 1978).

¹⁵ Ladurie and Goy, *Tithe and Agrarian History*, p. 8.

¹⁶ DCM, Granator's Account 1341/2. This document is badly damaged and barely legible. The words '*Receptis frumenti de decimis in manu Prioris*' followed by an entry for Harton (Jarrow) suggest it did list grain quantities received from tithes.

no commensurate increase in output because of changes in the price of grain.¹⁷ Guy Bois applied similar methods in a medieval context, using tithe receipts from Normandy parishes to analyse output in the fifteenth and sixteenth centuries. Using a grain price series from Rouen, he was able to convert a series of tithe leases into approximations of output by dividing the income from tithe by the price of wheat.¹⁸

We have receipts from the sale of the tithes of the vills of eleven parishes between the Rivers Tyne and Tees from 1350 to 1400, taken from the accounts of the Almoner, Bursar, Chamberlain, Hostiller, Prior of Finchale, Master of Jarrow, and Master of Wearmouth.¹⁹ The methodology of Ladurie and Bois has been adapted to express these series of receipts as estimations of tithe output, that is 10 per cent of overall output, on the basis of Equation 1:

Equation 1 Converting Tithe Receipts into Tithe Output, following Ladurie and Bois

$$\text{Tithe output (quarters)} = \frac{\text{Receipt from sale of tithe (£)}}{\text{Price per quarter (£)}}$$

The process requires an accurate price series for North-Eastern England and there is no such series in print. However, Lord Beveridge was on the verge of publishing a series based on the abundant Durham price material when he died in 1963, and his notes and calculations deposited in the London School of Economics have been used.²⁰ The above equation shows that we need a price series based on the price of an 'average' quarter of grain which means we need to know the approximate proportions of cereal crops contained in the output of County Durham. Clearly, if we knew the precise amounts of each grain produced, we would not need to use tithe sale receipts to calculate output. It was possible, however, to use occasional bursars' account entries giving details of output to calculate the composition of an average quarter of grain.²¹

As Ladurie observed, the conversion of a cash tithe receipt into an approximation of tithe output is based on a reconstruction of the process by which the purchaser and

¹⁷ E. Le Roy Ladurie, *The Peasants of Languedoc* (Urbana, 1974), pp. 77–80.

¹⁸ G. Bois, *The Crisis of Feudalism: Economy and Society in Eastern Normandy c. 1300–1550* (Cambridge and Paris, 1984), pp. 123–25.

¹⁹ Aycliffe (Bursar), Billingham (Bursar), Bishop Middleham (Finchale Prior), Dalton-le-Dale (Chamberlain), Durham St Oswald (Hostiller and Almoner), Heighington (Bursar), Jarrow (Bursar and Master of Jarrow), Kirk Merrington (Bursar), Monk Hesleden (Bursar), Monkwearmouth (Bursar and Master of Wearmouth), Pitlington (Bursar). The only parish in County Durham appropriated to the Priory and not included in this list is the tiny parish of Gilesgate St Mary Magdalene, pertaining to the Almoner, from which we have no usable garb tithe receipts from this period. Almost all the tithes included are between the Rivers Tyne and Tees but the medieval parish of Jarrow included Wallsend and Willington which are north of the Tyne.

²⁰ The Beveridge Price History Archive (British Library of Political and Economic Science, London School of Economics), Boxes C1, C2, C3, C4, C5, C6, C7, C8(i) and C8(ii). Beveridge's co-workers systematically extracted every price, whether for purchase or sale, in the Durham accounting material and these were collated and averaged to produce a single price figure for each year. Box C8(ii) contains the Main Table into which the final prices arrived at were entered and these have been used here. On the basis of sample testing, Beveridge's series seems to be reasonably sound but further work is needed to establish a definitive price series.

²¹ The bursars' accounts of 1349/50, 1370 1, 1388 9 and 1402 3 include various direct output figures from North Sherburn, South Sherburn and Shadforth (all in Pitlington parish). Although the sample of vills from which fourteenth-century output figures were taken is undesirably narrow, it was found that altering the proportions of constituent grains in an 'average' quarter had very little effect on the price series.

seller negotiated a price.²² Given that the amount paid for the tithe was negotiated prior to the harvest, the purchaser must have been reliant on the previous years' prices in his estimation of the likely sale value of the tithe crops. Such speculation on the part of a medieval tithe purchaser is difficult to reconstruct since we have little idea of the sources he would have had at his disposal. Given this uncertainty, the mean price for the five years up to the date of the sale of the tithe was used in the calculation.

The basic equation given above allows us to construct a rudimentary series of estimated tithe output for any single series of tithe receipts. For example, we have a consistent series of tithe receipts from Willington and Wallsend (Jarrow) from 1350–1400, comprising thirty-nine separate entries (a selection of which is shown in Table 1). Each of these cash receipts could be divided by the price of an average quarter in the year in question to give an approximation of the number of quarters of grain represented by the Wallsend and Willington tithe. However, the Wallsend and Willington series is particularly consistently represented; we have far fewer tithe receipts from many other villis and smaller datasets could not usefully be analysed. A method was needed by which the varying samples of tithe receipts from each year could be expressed as a single figure which is meaningful in comparison with those from surrounding years. The list of villis from which we know the tithe receipts varies from year to year, depending on both the survival and detail of each obedientiary account, and Equation 2 overcomes this difficulty by indexing tithe receipts against their 1340s averages.

Equation 2 Calculating Overall Tithe Output Indices for a Given Year

r = cash tithe receipt from individual vill

y = year of harvest

Cash tithe receipt index for year y

Receipt from recorded villis

as a proportion of the average
receipt from the same villis
in the 1340s

$$= \frac{\text{sum}(r^1_1 + r^2_1 + r^3_1 \dots)}{\text{sum}(r^1_{1340s} + r^2_{1340s} + r^3_{1340s} \dots)} \times 100$$

$$= A_y$$

Price index for year y

Average price over five
previous years as
proportion of 1340s level

$$= \frac{(\text{price}_{y-5} + \text{price}_{y-4} + \text{price}_{y-3} + \text{price}_{y-2} + \text{price}_{y-1})/5}{\text{mean price}_{1340s}}$$

$$= P_y$$

Output index for year y (Equation 2)

$$\text{Output index for year } y = \frac{A_y}{P_y}$$

²² Ladurie, *Languedoc*, p. 77.

In the first step of Equation 2 the set of cash tithe receipts extracted from the accounts for any given year is expressed as a percentage of the average cash receipt for the same vill during the 1340s. If cash tithe receipts from the set of vills for which information survives from one year were added up then the result would not be comparable with that from the next year because of the changes in the set of vills. By indexing the receipts against their 1340s averages, as in the first step of Equation 2, we create a series of percentages comparable from year to year. What is more, these percentages are meaningful in historical terms because they compare receipts from before and after the Black Death.

Then the second step converts the price series into an index also and the final step divides the cash tithe receipt index by the price index. If the cash tithe receipt indices, i.e. the result of the first step of Equation 2, were plotted then the curve would be affected as much by grain price as by levels of production. A further index is therefore calculated for grain price, i.e. in the second step of the equation, to eliminate the effect of price on the final curve. Equation 2 operates in such a way as to ensure that, if tithe receipts for any given year were equal to those of the 1340s, and grain prices the same as those of the 1340s, then the result of the final step would be 100. Likewise, the result decreases if tithe receipts fall or prices rise and increases if tithe receipts rise or prices fall. Equation 2 therefore gives us a means of expressing total estimated output as a percentage of 1340s levels.²³

There are three main problems with this method of using the Durham tithe receipts. In the first place, the difficulty in distinguishing between annual sales and leases of tithes for more than one year creates a problem. Equation 2 calculates annual indices and the value of these is diminished if the calculations incorporate tithe leases over several years. *Infra aquas* tithes were never described as 'leased' between 1340 and 1400 but examples of the same individual paying the same amount for the same tithe over two or three years, such as that quoted above, suggest the practice may have existed. Unfortunately, the naming of tithe buyers is not consistent enough to enable systematic analysis of tithes sold for periods longer than one year.²⁴ However, leasing of tithes from parishes beyond the Tyne and Tees was much more common and this was usually made clear in the account²⁵; the explicitness in these cases suggests the practice was not common *infra aquas*. The inaccuracy in calculation of output indices is also mitigated by the use of prices calculated over the preceding five years.

Secondly, Equations 1 and 2 take no account of changing costs of tithe collection and any expenditure involved in selling the grain which was incorporated in the sums paid for tithes. In the manors of Feering (Essex) and Sampford (Sussex), for example, where tithe collection expenses were entered in the manorial accounts, the payments made to the rider (*equitator*) and collector (*collector* or *decimator*) were significant in

²³ The processes involved in devising and executing equation 2 are complex, not least the calculation of average 1340s levels, and this brief explanation will be expanded in my forthcoming Ph.D. thesis.

²⁴ 3,491 *infra aquas* tithe receipt entries survive in the Durham Priory accounting material from between 1340-1400 but only 2,159 of these have named buyers.

²⁵ For example, the Finchale Prior entered '*Et de xl' receptis pro ecclesia de Giggleswyck ad firmam dimissa.*' in his account of 1361 referring to the appropriated rectory of Giggleswick in North Yorkshire. *The Priory of Finchale. The Charters of Endowment, Inventories and Account Rolls*, ed. J. Raine, SS, vi (1837), lvii.

relation to the grain received from this source.²⁶ Neither can it be assumed that these costs were constant, either in absolute terms or as a proportion of the value of tithe grain received. For example, in the account of 1342/3 the Bursar estimated the grain taken from the tithes of the vill of Billingham to be worth £20 and 9s. 11d. was spent on collection; therefore, collection expenses represented 2½ per cent of the value of the tithe.²⁷ By 1386/7, however, the Billingham tithes, still in hand, were valued at £26 13s. 4d. and collection costs were £2 meaning collection represented some 7½ per cent of tithe value.²⁸ It appears that, at least in the case of Billingham, the cost of collecting the tithes had increased more quickly than their value. Unfortunately, the Billingham example is rare; it was unusual for Priory accountants to record the estimated values of tithes which were in hand prior to 1379/80 and this means that although we often have collection expenses for these years we tend not to have tithe values with which to compare them. The example casts serious doubt on the assumption that collection costs remained the same but the records are not consistent enough for changes to be expressed in precise terms.

The final difficulty with the method is more closely related to the structure of the accounts. Modern interpretation of medieval accounts is notoriously difficult because of the practice of entering fictitious receipts in the main body of the *compotus*.²⁹ Just like other forms of income, payment for tithes, though entered in the receipts section, was sometimes not received because purchasers failed to pay. For example, at the end of the 1375/6 account the Bursar noted that arrears amounted to some £228 19s. 1d. and that these included '*arreragia decimarum*'.³⁰ The accounts only very rarely include a list of precisely which tithe payments had not been made and this means that the cash sums collected from the tithe receipts section are, to some extent, fictitious and therefore unreliable. However, this difficulty is mitigated by the process by which the Durham tithes were sold in the fourteenth and fifteenth centuries. The majority of sales were annual and if a buyer could not be found for tithes at a certain price then they were sold for a lower price or kept in hand. This means that arrears and vacancies are a much smaller problem for tithe receipts than rental receipts.

Figure 2 shows that tithe output indices could be calculated on the basis of Equation 2 for every year from 1350–1400 with the exception of 1369 from which we have no Bursar's account and from which the Hostiller's account is illegible. This exceptionally continuous series enables a detailed examination of fluctuations in output during the second half of the fourteenth century. Estimated tithe output series were also calculated for fifty *infra aquas* vills the tithe receipts from which are particularly consistently represented in the 1340–1400 accounting material. Figure 3 gives five examples. The individual vill series helped examine the trends suggested by Figure 2 in greater detail. Three important ideas were tested, relating first to the impact of the

²⁶ P(ublic) R(ecord) O(ffice), Special Collections: Ministers' and Receivers' Accounts, S.C.6, 841 5; PRO, S.C.6, 846 27; 846 28. I am grateful to Professor R. H. Britnell for providing me with these references.

²⁷ DCM, Bursar's Account 1342/3 (B), Receipts; Expenses.

²⁸ Ibid., 1386 7, Receipts; Expenses.

²⁹ The Finchale Prior's account of 1393 4 is a particularly accessible example of this practice. See Raine, *Priory of Finchale*, pp. cx–cx1.

³⁰ DCM, Bursar's Account 1375/6, summing up.

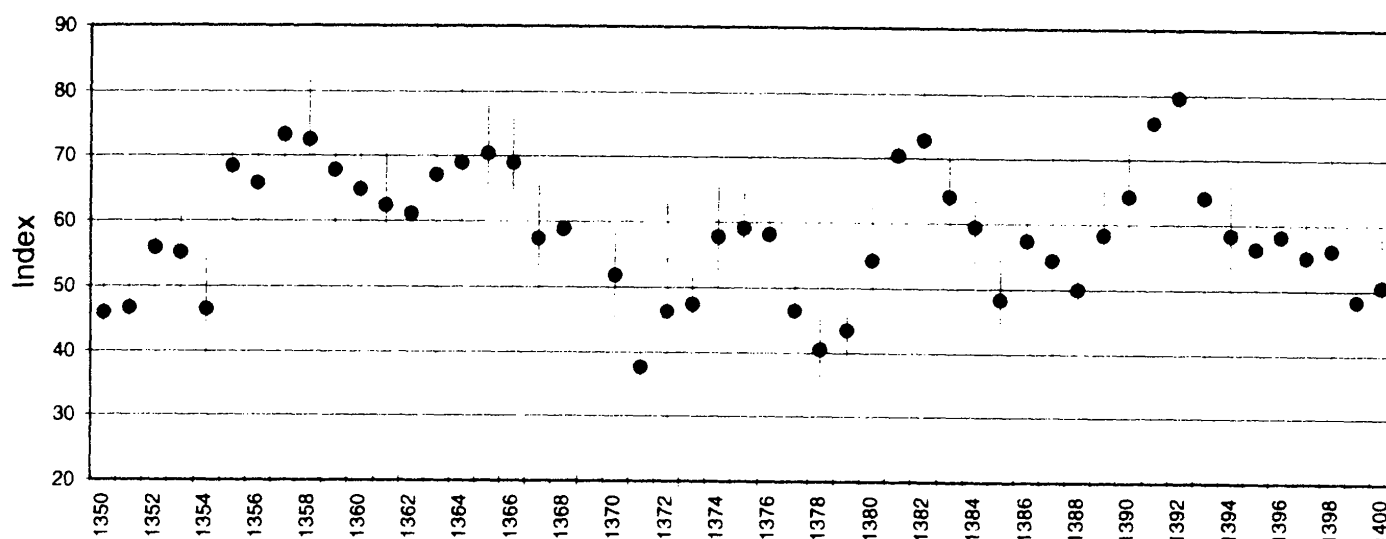


FIGURE 2. Output Indices Calculated for Durham Priory Appropriated Parishes Between the Tyne and Tees; bars indicate margins of error.

Black Death, secondly to the trend period 1340–c.1375, and thirdly to the trend period c. 1375–1400.

Like the Durham monks, modern historians have attached great importance to the impact of the Black Death on the economy of the late middle ages. There is certainly evidence that the plague caused serious agricultural disruption. Knighton, a canon of Leicester Abbey, observed that ‘many crops were left to rot in the fields’ in 1349 and John Spileman, reeve of Walsham-le-Willows (Suffolk), was fined £2 because of his failure to ensure the collection of the lord’s harvest which had resulted in the crops dying in the fields.³¹ Lack of available labour rendered collection of the harvest difficult. On the Bishop of Durham’s manor of Stockton, for example, 257 fewer reaping and binding works were performed than in the previous year ‘*causa pestilencie mortis*’.³² The output indices allow the immediate impact of the Black Death on agriculture to be quantified.

The second hypothesis to be tested concerns the supposed ‘Indian summer’ of seigneurial agriculture between 1350 and c.1375. Landlords’ rental and demesne incomes recovered remarkably quickly in the wake of the Black Death; tenements were rapidly reoccupied in southern England and demesne farming quickly regained profitability.³³ The timing of the recovery varied, however, with some landlords facing continued difficulties into the 1360s.³⁴ It seems there may have been reasonable buoyancy in the seigneurial sector in Durham given that the Bursar and Terrar continued the direct cultivation on all but one of their manors between the Black

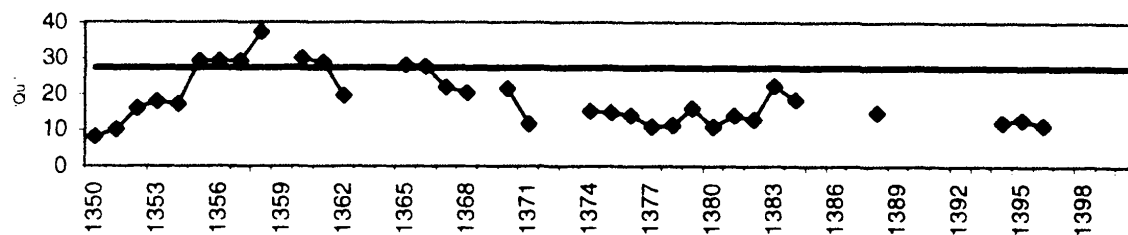
³¹ P. Ziegler, *The Black Death* (Harmondsworth, 1970), p. 181; R. Lock, ‘The Black Death in Walsham-le-Willows’, *Proceedings of the Suffolk Institutes of Archaeology and History*, xxxvii (1992), 324.

³² *Bishop Hatfield’s Survey*, ed. W. Greenwell, SS, xxxii (1857), 242.

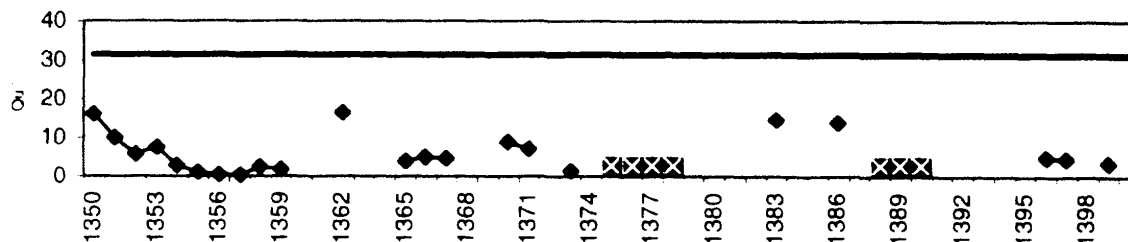
³³ Lock, *PSIAH*, xxxvii, 328; P. D. A. Harvey, *A Medieval Oxfordshire Village: Cuxham 1240–1400* (Oxford, 1965), p. 44; J. Hatcher, *Rural Economy and Society in the Duchy of Cornwall, 1300–1500* (1970), pp. 122, 128; M. Bailey, ‘The Prior and Convent of Ely and their Management of the Manor of Lakenheath in the Fourteenth Century’, in *Medieval Ecclesiastical Studies in Honour of Dorothy M. Owen*, ed. M. J. Franklin and C. Harper-Bill (Woodbridge, 1995), pp. 1–19; J. A. Raftis, *The Estates of Ramsey Abbey* (Toronto, 1957), p. 28.

³⁴ Bailey, in Franklin and Harper-Bill, *Medieval Ecclesiastical Studies*, pp. 8–9; Ziegler, *Black Death*, p. 191; J. L. Bolton, *The Medieval English Economy 1150–1500* (1980), p. 211.

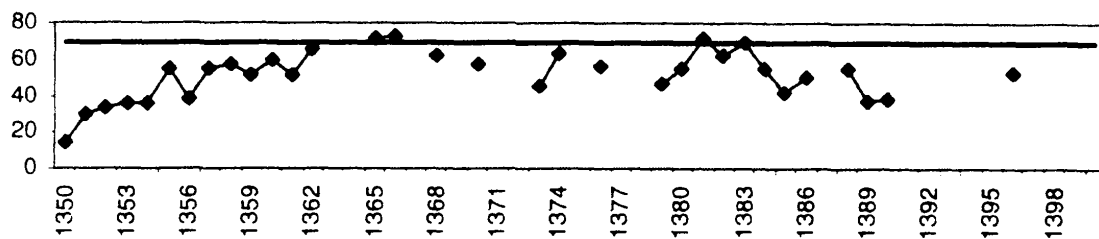
3.1 Heworth (Aycliffe)



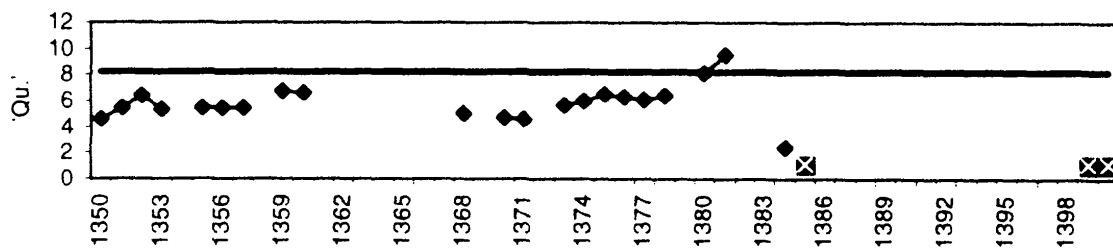
3.2 Spennymoor (Kirk Merrington)



3.3 Heighington (Heighington)



3.4 Ravensflat (Pittington)



3.5 Wastes (St Oswald)

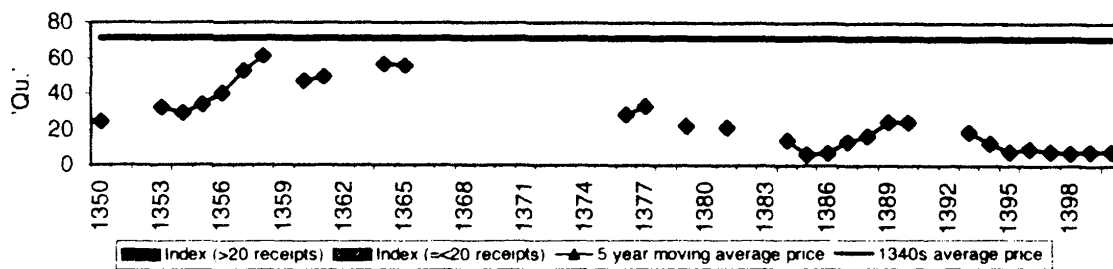


FIGURE 3. Estimated Tithe Output from Individual Vill

Death and 1370.³⁵ Even in Northumberland, long troubled by conflict with the Scots, Priory profits had recovered by the 1360s.³⁶ Nonetheless, landlords did experience difficulties in the county following the Black Death. Bishop Hatfield adopted heavy handed punitive measures, exploiting his Palatine powers to the full, to secure the occupation of his tenements.³⁷ Very little work has been done on the overall changes in production which accompanied the recovery of landlord incomes. The series of tithe output indices allows a detailed examination of fluctuations in output in the wake of the Black Death and of the precise timing of any recovery.

The third hypothesis under investigation concerns the agrarian recession of the final quarter of the fourteenth century. Turning again to the seigneurial and rental sectors of the economy, a renewed downturn in the 1370s is well documented in the current literature: 'The Indian summer was struck by its first frost. And frost was followed by the swift onset of winter.'³⁸ Direct cultivation of demesne lands ceased to be viable and rent levels fell.³⁹ Although evidence of renewed downturn is abundant, there was no unanimity in the precise timing of the difficulties, with recovery continuing in the 1370s and 1380s on some estates.⁴⁰ No work has been done on rent levels in Durham in the final decades of the fourteenth century but ten of the Priory's demesnes were leased between 1373 and 1416 leaving only two in hand.⁴¹ Again, very little work has been done on the peasant sector but there is some evidence of contraction in cultivated area in the Home Counties, sometimes in favour of pastoral farming.⁴² The tithe output series enables us to observe the extent of overall cultivation in the Priory's *infra aquas* parishes and to look for signs of renewed downturn at the end of the fourteenth century.

II

Evidence from the Bishop's halmote court records suggests the plague crossed the River Tees in the late summer of 1349 and ravaged the county from August onwards.⁴³ Labour scarcity must have created particular difficulties on seigneurial lands but it may not have affected the peasant sector so seriously; it is difficult to imagine peasants abandoning fields ripe for harvesting even in the darkest days of the pestilence. However, the records from the Bishop's halmotes do indicate reluctance on the part of the peasantry to resow their lands in the wake of the plague; on 7 July 1350 the coroner at the Chester-le-Street halmote announced that only fourteen of the

³⁵ R. A. Lomas, 'The Priory of Durham and its Demesnes in the Fourteenth and Fifteenth Centuries', *Economic History Review*, 2nd series, xxxi (1978), 345.

³⁶ R. A. Lomas, *North-East England in the Middle Ages* (Edinburgh, 1992), pp. 47–61.

³⁷ R. H. Britnell, 'Feudal reaction after the Black Death in the Palatinate of Durham', *Past and Present*, cxxviii (1990), 28–47.

³⁸ A. R. Bridbury, 'The Black Death', *EcHR*, 2nd ser., xxvi (1973), 584.

³⁹ P. D. A. Harvey, 'The Home Counties and the Occupation of Land', in *Agrarian History of England and Wales*, volume iii, ed. E. Miller (Cambridge, 1991), p. 663; C. Dyer, *Lords and Peasants in a Changing Society: the Estates of the Bishops of Worcester, 680–1540* (Cambridge, 1980), pp. 119–20, 145.

⁴⁰ Raftis, *Ramsey Abbey*, pp. 265–66.

⁴¹ Lomas, *EcHR*, 2nd ser., xxxi, 345.

⁴² Harvey, in Miller, *Agrarian History of England and Wales*, iii, 115.

⁴³ F. A. Gasquet, *The Black Death of 1348 and 1349*, 2nd edn (1908), p. 185; F. Bradshaw, 'Social and Economic History', in *The Victoria County History of the County of Durham*, ed. W. Page, ii (1907), 210–11; Britnell, *P&P*, ccxxvii, 31.

Boldon *bondi* had sowed their land.⁴⁴ The Bursar's account of 1349/50 contains ample evidence of disruption since an unusually large number of tithes were *in manu domini* rather than sold. Whilst only ten and fourteen *infra aquas* villas were *in manu domini* in the bursars' accounts of 1347/8 and 1348/9 respectively, some twenty-nine villas were in hand in the year of the Black Death itself. The exceptionally high rate of direct collection by the Priory suggests buyers could not always be found. Similarly, a particularly large number of the tithes which were sold were bought by new buyers. This is shown by an analysis of the names of the tithe buyers in the bursars' accounts of 1348/9 and 1349/50. We know the names of the purchasers of the tithes of fifteen villas in both these accounts and the names differ completely in ten cases, partially in two cases and are identical only in three. This is an exceptionally high turnover; in 1347/8 and 1348/9, the tithes of eight of the same selection of villas were bought by purchasers with identical names. Given the devastating demographic impact of the Black Death, which carried off between 20 per cent and 80 per cent of the Priory's tenants in different villas, the high turnover of tithe purchasers is hardly surprising.⁴⁵ The tithe sale contracts were drawn up prior to the harvest of 1349, when the plague had not arrived in the county, and it is likely that many purchasers died before they could make their payments in 1350. Whilst the Priory was forced to collect many 1349 tithes itself, it seems demographic catastrophe was not so severe as to prevent last minute purchasers being found in some cases.

The Black Death caused severe disruption to agricultural productivity in the parishes appropriated to Durham Priory between the Tyne and Tees and yet tithes were collected, meaning the harvest must have been reaped. The earliest post-Black Death harvest for which it is possible to calculate a meaningful tithe output index is that of 1350. The result is under half the 1340s average. A closer examination of the tithe output indices for the individual villas helps to quantify the extent of the disruption and the results of this analysis are shown in Table 2.

Of the thirty-nine *infra aquas* villas or vill pairs from which figures are available from the harvest of 1350, twenty-two produced harvests of between 30 per cent and 59 per cent of their 1340s levels. In four cases, disruption was even more severe with output falling below 31 per cent; the vill of Heighington was the worst affected with output falling to 21 per cent of 1340s levels (Fig. 3.3). Desperate falls in output were not universal. Twelve villas produced between 60 per cent and 99 per cent of 1340s output levels although only one produced over 100 per cent.

Lomas's demographic evidence suggests some regional patterns in the death rates although adjacent villas could be very differently affected. The death rate was higher in townships near the mouth of the River Wear than further up the Wear valley.⁴⁶ Unfortunately, a direct comparison between death rate and impact on agricultural output is not possible because of the different samples of villas from which the two types of data survive. Table 3 suggests there was a regional pattern in the impact of the plague on output.

Although villas in coastal parishes seem to have had varied experiences in the immediate aftermath of the Black Death, those in south Durham were less likely to be

⁴⁴ Bradshaw, in *VCH Durham*, II, 213.

⁴⁵ R. A. Lomas, 'The Black Death in County Durham', *Journal of Medieval History*, xv (1989), 127–40.

⁴⁶ *Ibid.*, 129.

TABLE 2
1350 Estimated Tithe Output as a Percentage of 1340s Averages in Different Vill

0-29%	30-59%	60-99%	100%+
Woodham	Newton Ketton	Nunstainton	Newhouse
Preston le Skerne	Heworth	Felling	
Walworth	Monkton	Nether Heworth.	
Heighington	Fallingsby	Over Heworth	
	Harton	Wallsend, Willington	
	Hebburn	Hardwick	
	Preston, Simonside	Hulam	
	Eden	Redworth	
	Sheraton	North Sherburn	
	School Aycliffe	North Pittington	
	Killerby	Shincliffe	
	Spennymoor	Elvet	
	Great Chilton.	Newton	
	Little Chilton		
	Ferryhill		
	Ludworth		
	Ravensflat		
	Hetton le Hill		
	Shadforth		
	Old Durham		
	Burn Hall		
	Harbour House		
	Wastes		
4	22	12	1

very severely affected than those in mid-Durham.⁴⁷ It is not clear why this may have been the case.

III

Figure 2 shows that there was considerable recovery in production in the Priory parishes between the Tyne and the Tees in the eight harvests following the Black Death. By 1357 output had reached over 70 per cent of its 1340s level. This is reflected by spectacular recovery in output in several individual vill; indeed, 1340s output levels were exceeded before 1358 in Nether Heworth and Over Heworth (Jarrow), North Sherburn (Pittington), School Aycliffe (Heighington), and Heworth (Aycliffe). The last vill affords a particularly good example of sustained post-Black Death recovery. Average tithe output in the 1340s was 27.1qu which fell to 8.1qu but then steadily rose until it had reached 37.4qu in 1358 (Fig. 3.1). Heworth was a small vill but North Sherburn was much larger and also showed rising productivity in the 1350s. Average tithe output in the 1340s from North Sherburn was 90.4qu and this fell as low as 55.1qu in 1351 but, by 1357, had risen to 100.5qu.

⁴⁷ A Chi-Square test on Table 2 reveals that these results are significant at a 6 per cent level.

TABLE 3
The Impact of the Black Death on Regions of the County

	Vills from which 1350 estimated tithe output 0-49% of 1340s average	Vills from which 1350 estimated tithe output 50% + of 1340s average	Total
South Durham (Aycliffe, Heighington, Kirk Merrington)	10	4	14
Mid-Durham (Pittington, St Oswald)	4	9	13
Coastal (Jarrow, Monk Hesleden)	6	6	12
Total	20	19	39

On the other hand, five villis showed marked decline in output even during the 1350s: Fallingsby (Jarrow), Hulam (Monk Hesleden), Hardwick (Monk Hesleden), Spennymoor (Kirk Merrington), and Newhouse (Aycliffe). Spennymoor constitutes the most spectacular example. This vill produced on average 31.6qu during the 1340s which fell to 16.2qu in 1350 but by 1357 had fallen even further to as little as 0.3qu (Fig. 3.2).⁴⁸ It is noticeable that all these villis were relatively small; they had average 1340s tithe output levels of under 33qu and Fallingsby and Newhouse produced under 6qu. Indeed, two of these villis, Fallingsby and Spennymoor, went on to be abandoned completely in the 1370s.

By the 1360s the output index levels off and never rises above its 1357 level of over 73 per cent of 1340s output levels (with the exception of 1391 and 1392 from which the indices are based on a very small sample of surviving tithe receipts). Indeed, it falls steadily for five years after 1358 and only rallies slightly in the mid-late 1360s. From 1367 the decline was much more serious and, by 1371, the index falls to 43 per cent which is lower than its 1350 level. Twenty-seven individual vill graphs showed stagnating output in the 1360s, often substantially below 1340s levels (e.g. Fig. 3.5), whereas only seven showed increasing output (e.g. Fig. 3.3). Insufficient data were available to suggest trends from sixteen villis.

The pattern suggested by Figure 2 of an end to the post-Black Death recovery in the late 1350s and early 1360s is borne out by the data from individual villis. It appears that, just as there was renewed buoyancy in the seigneurial sector, so overall output between the Tyne and Tees increased during the 1350s.⁴⁹ There must have been

⁴⁸ The history of Spennymoor is complicated and casts doubt over a purely economic interpretation of the declining output of the 1350s. Spennymoor began as 'a large tract of moorland in which several peripheral townships had rights of common'. Over the years these rights were infringed by various parties. *Durham Cathedral Priory Rentals, Volume 1, Bursar's Rentals*, ed. R. A. Lomas and A. J. Piper, SS. CXCVIII (1986), 217. The various different vill names used including 'Spennymoor' in the Kirk Merrington parish tithe sections of the bursars' accounts of the 1350s and 1360s are evidence of complex arrangements.

⁴⁹ Bridbury, *EcHR*, xxvi, 584; J. Hatcher, 'England in the Aftermath of the Black Death', *P&P*, CXLIV (1994), 6.

sufficient labour available in the Durham Priory parishes to begin recultivating fields which may have fallen empty in the year of the pestilence. This recovery was, however, remarkably short-lived. Bridbury postulated that the 'Indian summer of demesne farming lasted for at least one decade and may have lasted for two' and yet the recovery in overall Durham output barely lasted one decade.

IV

The pattern in overall Durham output in the final four decades of the fourteenth century was not one of steady decline but rather of instability. The evidence of Figure 2 suggests a series of oscillations with peaks of output about 1365, 1375, 1382 and 1392. These peaks never exceeded about three-quarters of the output of the 1340s. Much lower levels of output were attained in the troughs about 1371, 1378, 1385–88 and 1399–1400.

This interpretation is both supported and qualified by the evidence from individual vill. None of the fifty vill examined showed continuous decline from the 1370s and large and small vill alike experienced periods of recovery between the 1370s and the 1390s. Estimated tithe output from Harton, a substantial vill in Jarrow parish, fell as low as 33qu in 1377 but by 1382 had reached 80qu again. Fallingsby, a tiny vill in the same parish, was waste in 1374 and 1375 but produced its second highest estimated tithe output figure of the period in 1378 only to fall waste again by 1382. Whilst low output levels in the 1370s and late 1390s were almost universal, the timing of recovery between these years varied considerably from vill to vill. Estimated output from the small Pitlington parish vill of Ravensflat exceeded 1340s average levels in 1381 for the only time in the period before becoming waste by 1385 (Fig. 3.4). Estimated output from Wastes (St Oswald), on the other hand, continued to fall from 1376 until it reached a nadir in 1385 before climbing for five years in a row until 1390 (Fig. 3.5). As Figure 2 shows, the overall output indices were very high in 1391 and 1392 but we have few tithe receipts from these years. This makes it difficult to comment on the apparent buoyancy of the beginning of the 1390s but, judging by the tithe receipts from the St Oswald parish vill recorded in the hostillers' accounts which do survive from these years, output may have peaked at this point before falling dramatically later in the decade.

V

The basic pattern of output in the Durham Priory *infra aquas* parishes during the second half of the fourteenth century resembles at some points that observed in the seigneurial and rental sectors both in Durham and elsewhere in England. Recovery after the plague was remarkably swift but this was followed by a renewed downturn; the 1370s and the 1390s were periods of acute difficulty. Likewise, the Black Death does not seem to have been an immediately decisive factor in the Durham parishes. Whilst it reduced output by over half in the harvest following the plague, some recovery rapidly ensued. However, the history of arable husbandry in Durham does not correspond to generally accepted models. Not only was the period of recovery shorter than expected, but also any reference to the 'swift onset of winter' in the 1370s would be an oversimplification of the complex fluctuations over

the final four decades of the fourteenth century. It would be more reasonable to postulate brief post-Black Death recovery in the 1350s, followed by stagnation in output, three decades of instability, and decline in the final eight years of the century.

This raises the question of what caused output to level off in the 1360s and then fall in the 1370s and again in the 1390s. The sound recovery in output levels during the 1350s suggests the supply of labour in the county was sufficient to re-establish cultivation in the wake of the Black Death: there may indeed have existed a 'submerged and pullulating throng' ready to fill the shoes of the dead.⁵⁰ However, recent work on the most detailed demographic evidence available suggests that the 'plague's importance lay in its becoming established as a major factor of mortality for centuries to come'.⁵¹ Evidence from Yorkshire and Essex suggests that the first serious renewed outbreak of bubonic plague to follow the Black Death came in 1361 and the second in 1369.⁵²

If there were renewed epidemics in County Durham in 1361 and 1369 then this would correspond very well with the halt in the increase in output at the beginning of the 1360s and the collapse in output at the end of the 1360s. In the absence of any mention in chronicle sources, our evidence for plague outbreaks subsequent to the Black Death in Durham is scant but suggests the disease returned at the same time as elsewhere. An entry in the *Expense minute* section of the Durham Priory Hostiller's account roll of 1360 1 refers to a payment of 12*d.* to a shepherd '*a tempore pestilencie*' which implies a plague outbreak around this time.⁵³ Lomas used evidence of changes of tenancy in the halmote court rolls to conclude that County Durham was hit by the plague in 1369–70.⁵⁴ The 1370s were a decade of disastrously low output levels in the Durham Priory *infra aquas* parishes despite a minor recovery around 1375; indeed, the average decennial output index for the 1370s is the lowest of the period. It is in the 1370s that we find the first references to small villis ceasing to produce any tithe income. Fallingsby (Jarrow) was first recorded as waste in 1374 and Spennymoor (Kirk Merrington) in 1375 (Fig. 3.2).

These conclusions echo Bridbury's suggestion that overpopulation before the Black Death meant marginal productivity was very low and so output per capita was depressed. Productivity could therefore be maintained in the aftermath of the plague at a rate disproportionate to the level of depopulation and output per capita increased.⁵⁵ However, this was unique. When the plague carried off more members of the productive population in the 1360s, overall output fell and there was no reserve labour supply waiting in the wings to ensure recovery. This conclusion must be speculative in the absence of more detailed demographic evidence from County Durham; it is not clear whether output continued to be closely related to further outbreaks of the bubonic plague between 1370 and 1400.

⁵⁰ Bridbury, *EcHR*, xxvi, 590.

⁵¹ L. R. Poos, *A Rural Society after the Black Death: Essex, 1350–1525* (Cambridge, 1991), p. 112.

⁵² A. Hamilton Thompson, 'The Pestilences of the Fourteenth Century in the Diocese of York', *Archaeological Journal*, 71 (1914), 115–16; Poos, *Rural Society*, p. 112.

⁵³ *Extracts from the Account Rolls of the Abbey of Durham from the Original MSS.*, ed. J. T. Fowler, SS, xcix (1898), 126.

⁵⁴ Lomas, *Journal of Medieval History*, xv, 136.

⁵⁵ Bridbury, *EcHR*, xxvi, 590–91.

Tyne and Tees

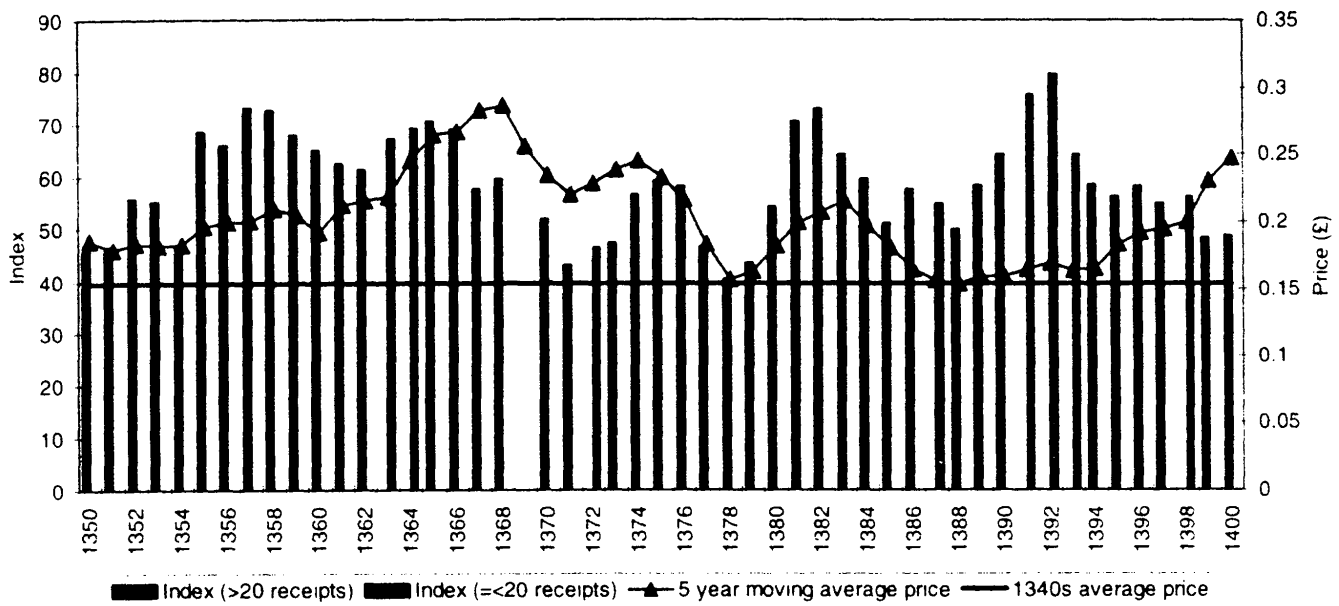


FIGURE 4. Moving Average Prices and Output Indices for Durham Priory Parishes Between the Tyne and Tees

An analysis of the relationship between price movements in the county and output levels gives further weight to this hypothesis. Figure 4 shows that in the first eight harvests following the Black Death, output levels and price levels both rose suggesting cultivation and demand gathered momentum as society recovered from the pestilence. During the 1360s, output stabilized although prices continued to rise but the trends in prices and output changed sharply at the end of this decade. Demand and output both fell dramatically in the early years of the 1370s, which is commensurate with the impact of renewed demographic crisis. Continued instability in both cultivation and demand is suggested by the directly proportional movement of prices and output indices until the early 1390s. At this point, however, the relationship between output and price changes and becomes inversely proportional. Prices began to rise as output tailed off. Such an inverse relationship between the movement of cereals prices and output suggests that price variation was determined in the short run primarily by fluctuations in supply. Natural variation in yields, caused by fluctuations in the weather and quality of the harvest, means prices rise and fall. The graph suggests three stages in the agricultural history of County Durham in the second half of the fourteenth century: post-Black Death recovery and then stability during the 1350s and 1360s; demographic disaster followed by instability during the 1370s and 1380s; and finally renewed stability at lower levels of output during the 1390s.

Having performed a similar exercise in analysing changes in their tithe income, the Durham monks of 1436–37 gave four reasons for the disastrous decline in spiritual revenue. The first two refer to their parishes in Scotland and Northumberland and are therefore not relevant in this study of tithes *infra aquas*. The third and fourth, however, are worth quoting in full.

Thirdly, and especially, because lands in the parishes of the said churches which were once cultivated, from which the Prior and Convent received garb tithes, were later put to pasture by their lords.

Fourthly, because of frequent outbreaks of plague, many places became waste and produced nothing of any use.⁵⁶

Both the monks' suggestions confirm that the cultivated area contracted but the reference to 'frequent outbreaks of plague' is of particular importance. This document is a surprising example of economic self-awareness on the part of the Durham monks, and it is indicative that, in the light of fifteenth- and twenty-first-century analyses of fourteenth-century tithe income, the important factor does not seem to have been the Black Death alone but rather the emergence of endemic bubonic plague.

⁵⁶ Raine, *Historiae Dunelmensis Scriptores Tres*, p. ccl.